

The appliance of science: Spiriting crime mapping with crime science

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What will I be talking about?

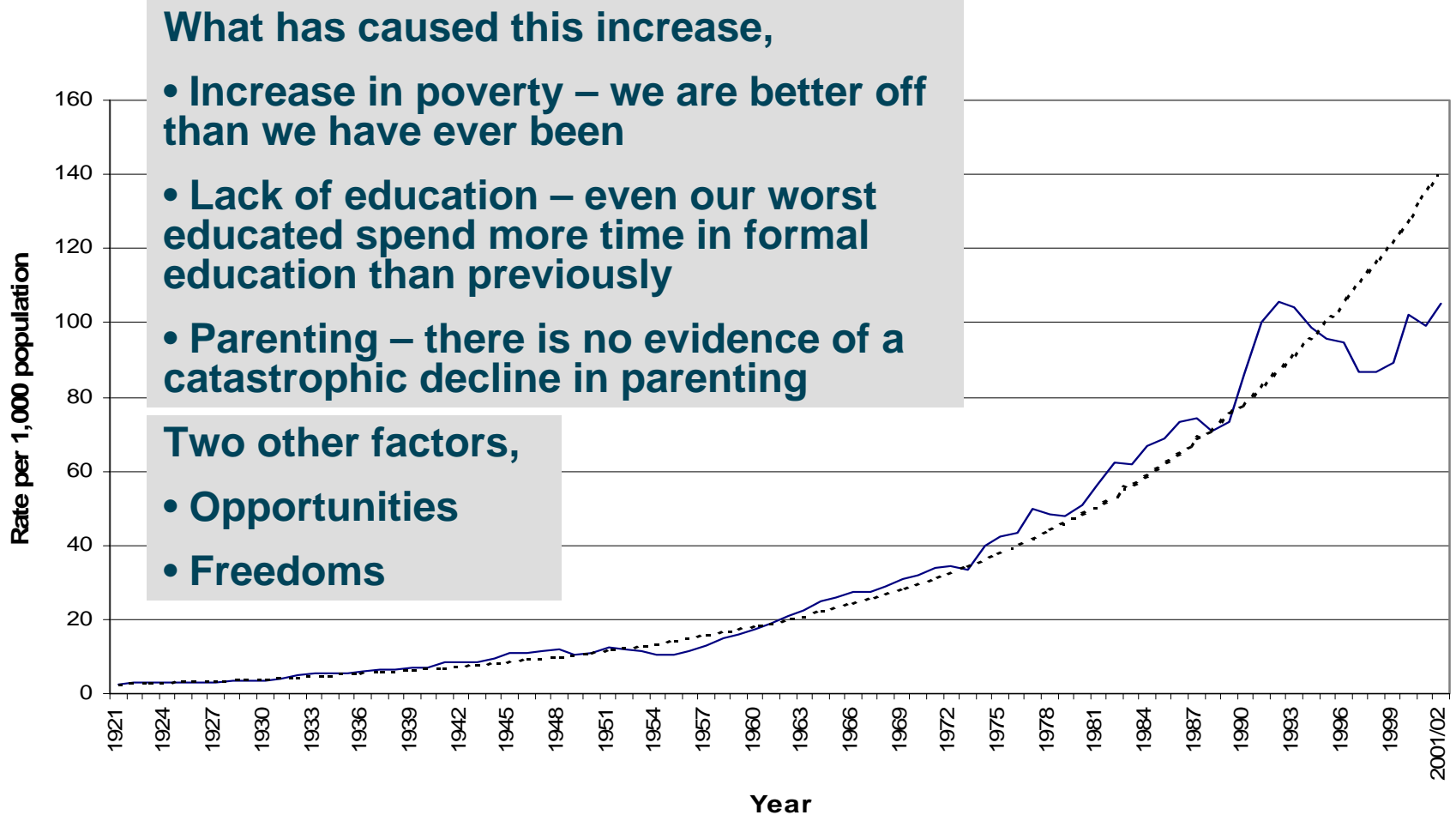
- The problem with crime
- Realising opportunities
- What is crime science
 - Crime science and crime mapping
 - Two examples
- Challenges for crime science

The problem with crime

- For the causes of crime we often look at,
 - Deprivation and poverty
 - Unemployment
 - Poor education
 - Poor parenting
 - Drugs and alcohol
- And try to tackle these to address the crime problem

The problem with crime

Recorded crime in England and Wales since 1918



The problem with crime

- Lots of people commit crime
- Home Office cohort study
 - 33% of males will have a conviction by the age of 46
 - half are convicted only once
 - just over half have a career of less than one year
 - nearly half convicted of theft or handling stolen goods
- Prevalence rates for offending by 14-21 year olds
(Junger-Tas et al, 1994)

<i>Have you committed crime?</i>	Ever	Last 12 months
England and Wales	66%	44%
Netherlands	85%	61%
Spain	81%	57%
Switzerland	90%	57%

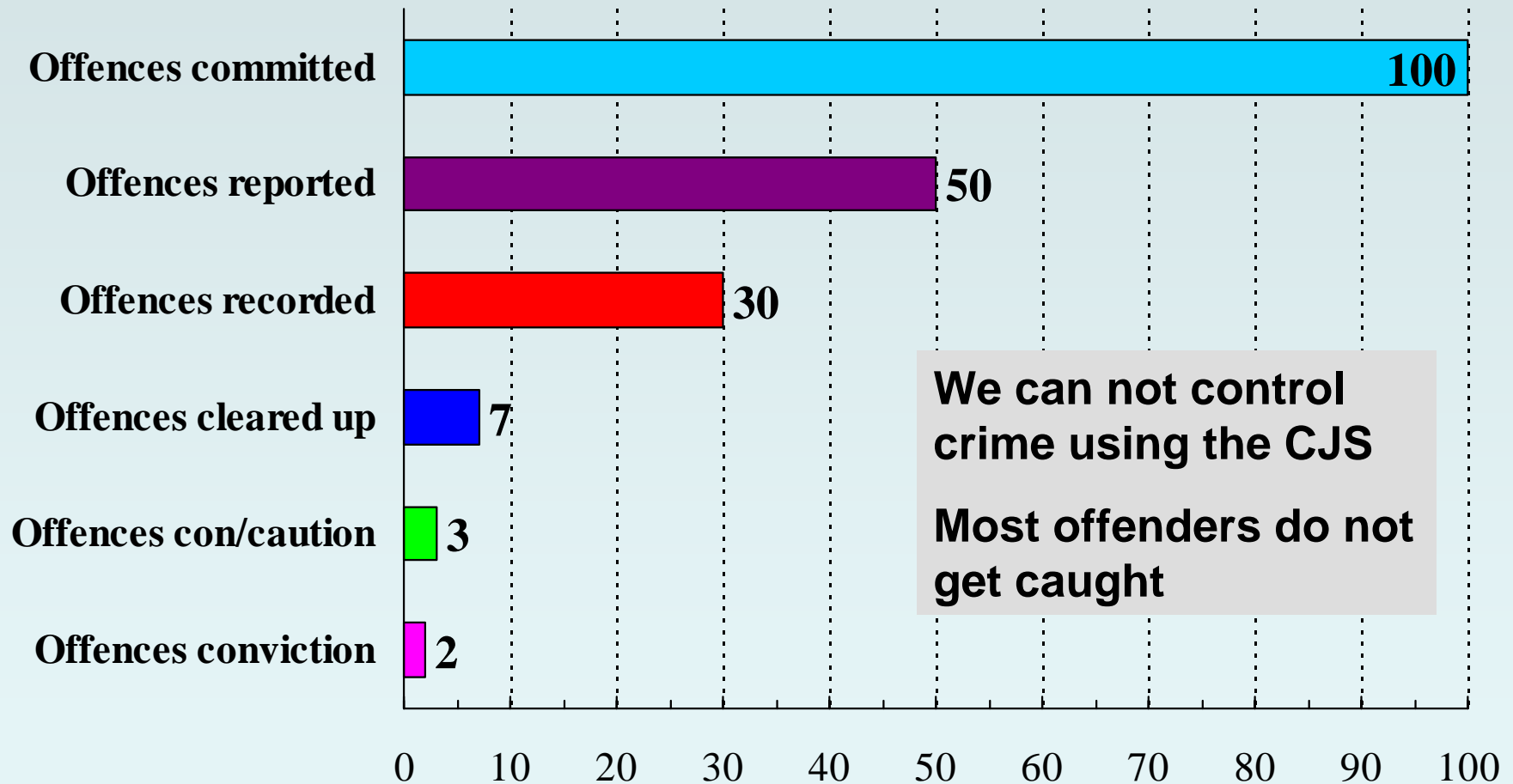
The problem with crime

- So how do we respond to the crime problem
 - We invoke the law and the supporting infrastructure of the Criminal Justice System
 - Police, courts, prisons, probation/corrections, community service etc

WHY?

- Because we consistently try to attribute blame when we discuss crime control
- We see crime as a characteristic of the individual
- Hoping the Criminal Justice System will successfully deal with it

The problem with crime



The problem with crime

In summary,

- Lots of people offend,
 - but do not do it for that long
 - what they do is not that serious
- We can not rely upon the supporting infrastructure of the CJS to control and reduce crime
 - CJS does have a vital role
 - making clear the boundaries of acceptable and unacceptable behaviour
 - Delivering retribution, justice and protection
 - But is not sufficient as a method for controlling and reducing crime

The problem with crime

- So what do we need to do instead to reduce crime?
 - Need to behave in a more objective and scientific manner
 - We need to prevent as many offences as possible in the first place
 - We need to catch offenders more effectively and more reliably, and deal with them efficiently once caught
 - We need to avoid overestimating the importance of individuals character traits and not underestimate the importance of situation and context
- OK, so how do we do it?

Realising opportunities

- If there were no opportunities, there would be no crimes
 - Same can not be said for the other *causes*
 - E.g. If there was no poverty, there would still be crime
- *The most significant and universal cause of crime is opportunity*

Realising opportunities

- We find the opportunity in the detail
 - The immediate situation is where we find the detail
- Changes to these small details can have a significant effect

What is crime science?

- Its new but its not rocket science
- It is a discipline, and not just a technique or methodology, or explained by one single theory
- Its focus:
 - is on outcomes
 - the determination to reduce crime
 - drawing from a wide range of constituent disciplines
- Its methodologies
 - Are scientific - embracing the standards and values of the natural sciences
 - Using data, applying logic and testable theories, drawing on evidence, using rational thought, testing hypotheses, and establishing knowledge

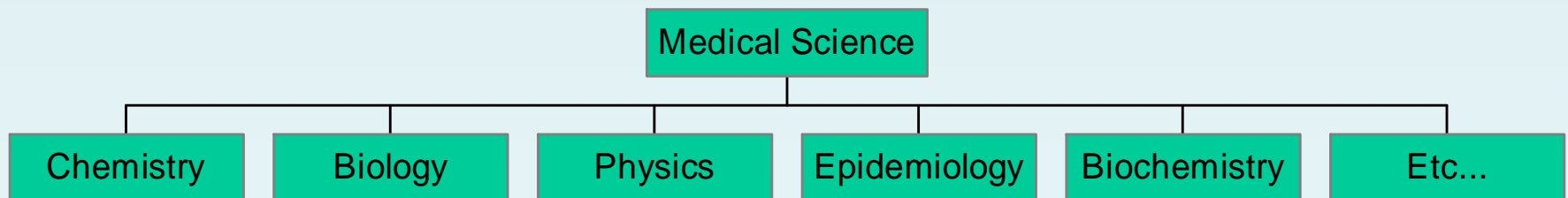
What is crime science?

- Its assumptions
 - Crime results from an interaction between people's dispositions and the temptations and opportunities to commit crime
 - There are more freedoms in our present society than in the past
- Its approach
 - Getting upstream of the problem to reduce crime
 - Reducing the temptations and opportunities for crime
 - Finding new ways for effectively catching offenders
- Why
 - It can be easier than changing people, more immediate, and can be more effective

What is crime science?

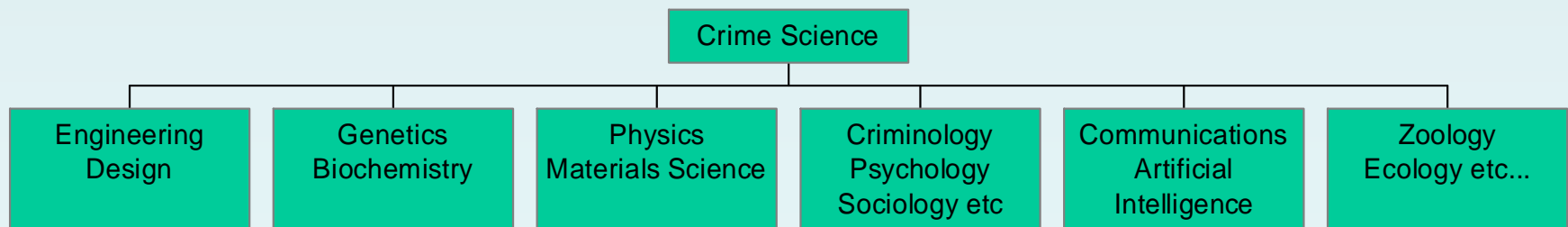
An analogy – medical science

- Is about keeping us well or making us better when we get ill
- Researches specific medical problems, medical treatments for particular conditions, and the means of averting particular medical problems
- Draws from a range of disciplines



What is crime science?

- Draws on sociology, psychology, geography, economics, and criminology, as well as the physical and computer sciences to deliver a reduction in crime
- Researches the problems that lead to crime, identifies the specifics of the problem, how they can be averted
- Its about reducing crime, similar to how medical science is about reducing ill health



What is crime science?

- It is defined by established and coherent theory
 - Routine Activity Theory
 - Crime Pattern Theory
 - Rational Choice Theory
- Its relationship with problem-oriented policing and situational crime prevention?
 - POP and SCP are scientific methodologies
 - Crime science is a discipline, with POP and SCP being techniques that crime scientists would most likely employ

Crime science and crime mapping?

- Drawing from geography, spatial statistics and GI Science
- Focusing in on the geography of crime
 - Space and time of criminal behaviour
 - Offender distributions
 - Spatial dynamic between where crime happens, offenders, targets/victims and opportunities
- Exploring the spatial distribution of opportunities
- Strengthening crime mapping by drawing from other disciplines
- Two examples
 - Vehicle crime in Camden, London: a crime scientist carrying out a problem solving analysis
 - Prospective mapping: drawing from other disciplines

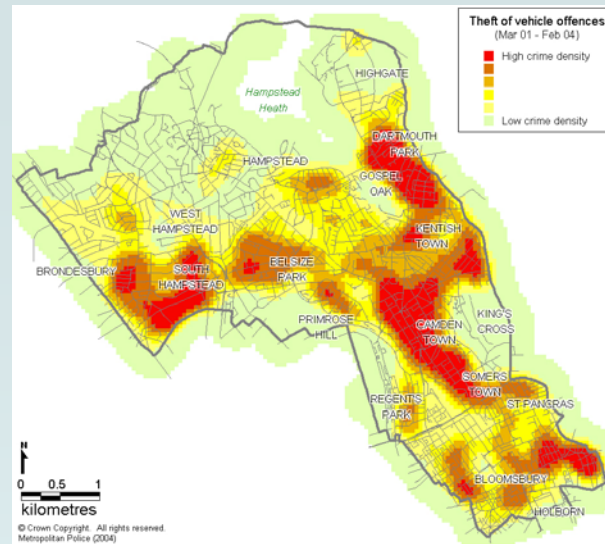
Theft of vehicles in Camden, London

Camden, London

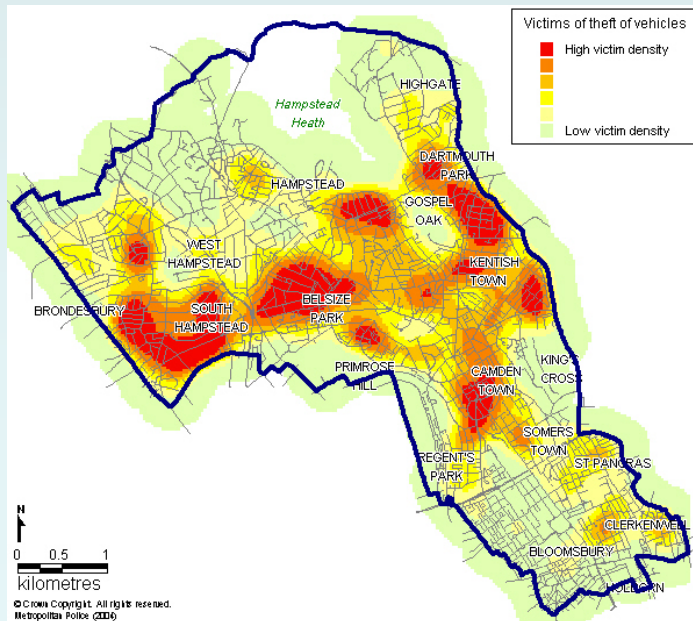
- “We think we have a vehicle crime problem”
- “Not quite sure what it is”
- “We think it relates mainly to local residents having their cars broken into or stolen at night”

Victims

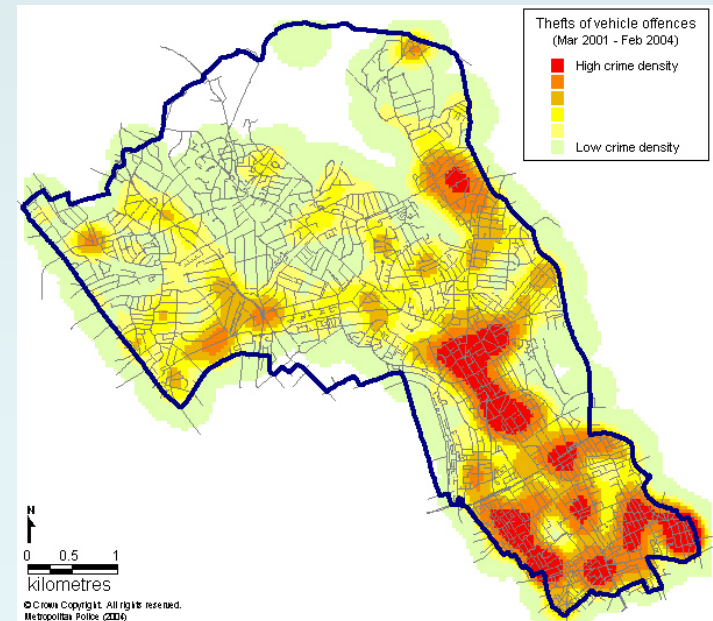
Theft of vehicles



Camden victims (58%)



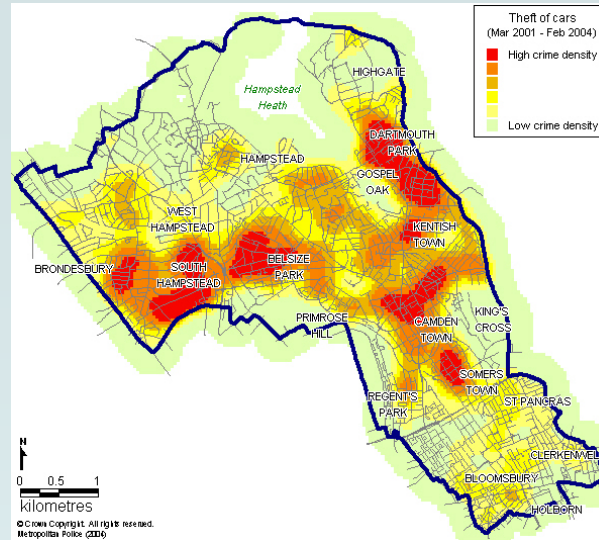
Non-Camden victims (42%)



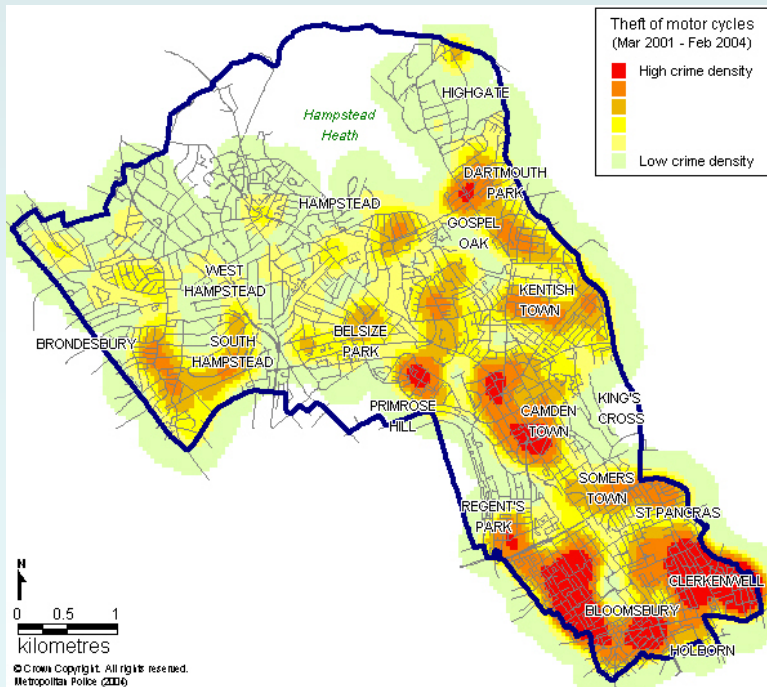
Type of vehicles stolen

Vehicle type description	Offences	%
Hatchback	1258	21.7%
Saloon	1433	24.7%
Estate	220	3.8%
People carrier	45	0.8%
Convertible	120	2.1%
Sports	42	0.7%
4 X 4's	4	0.1%
Moped or scooter	1494	25.8%
Motor cycle	755	13.0%
Motor caravan	11	0.2%
Van	274	4.7%
Other	50	0.9%
Not known	23	0.4%

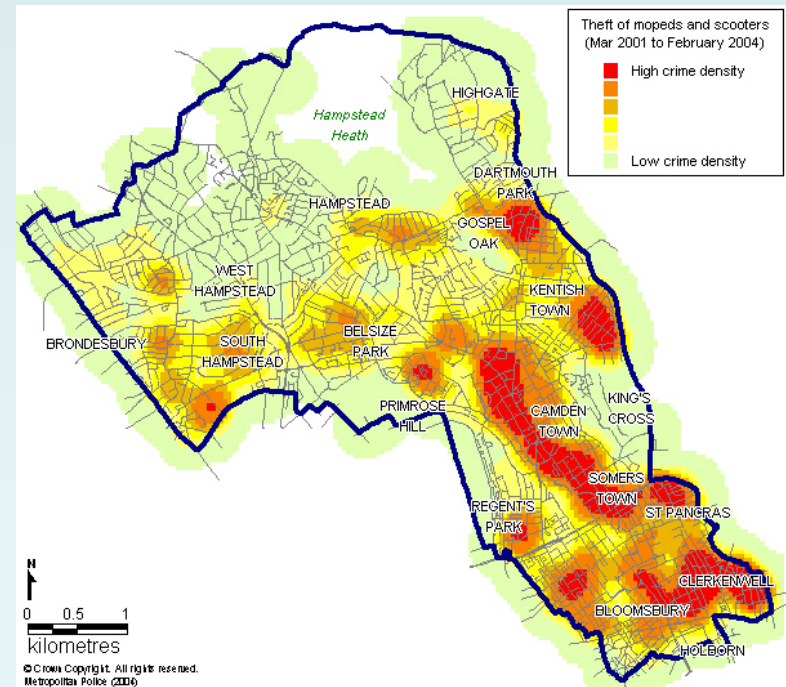
Cars



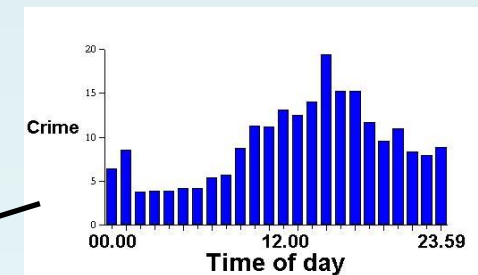
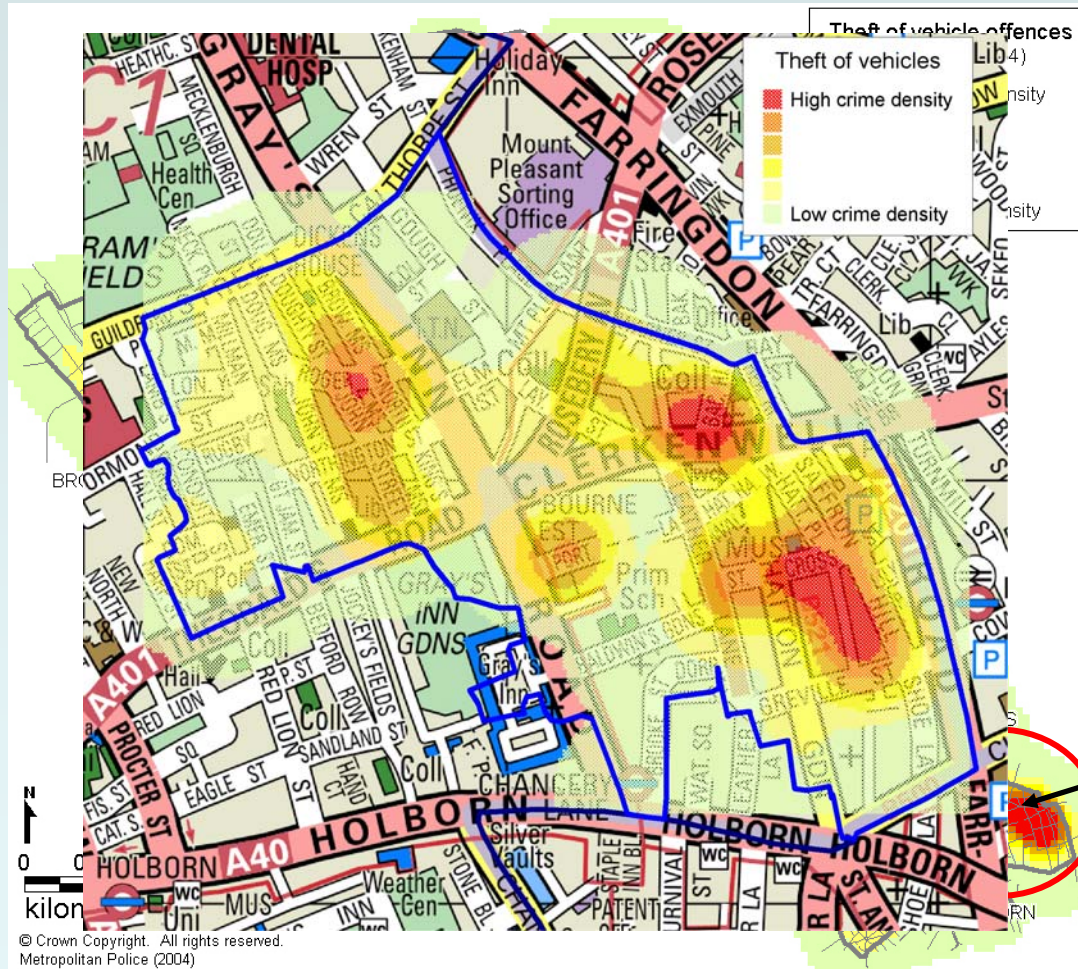
Motorbikes



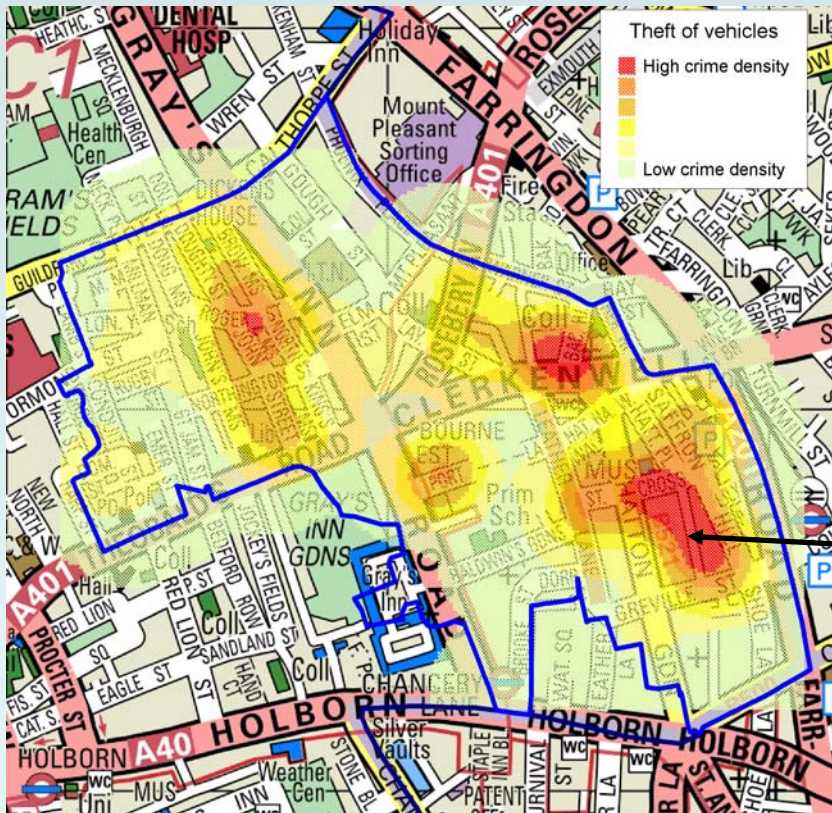
Scooters and mopeds



Theft of vehicles in Camden, London



Theft of vehicles in Camden, London

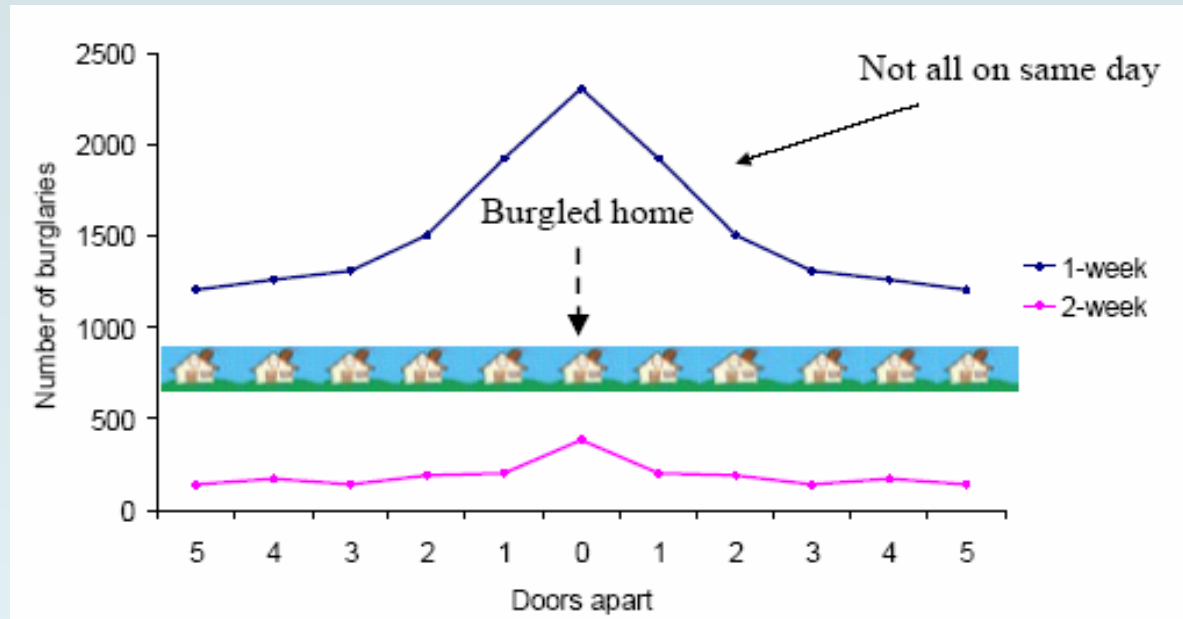


Vehicle type	Camden	Clerkenwell (n)	Clerkenwell(%)
Car	51%	41	18%
Sports or convertible	3%	5	2%
Scooter or moped	26%	95	42%
Motor cycle	13%	70	31%
Van	5%	3	1%
Other	2.0%	10	4%
Not known	0.5%	0	0%



How would you respond to this?

Prospective mapping

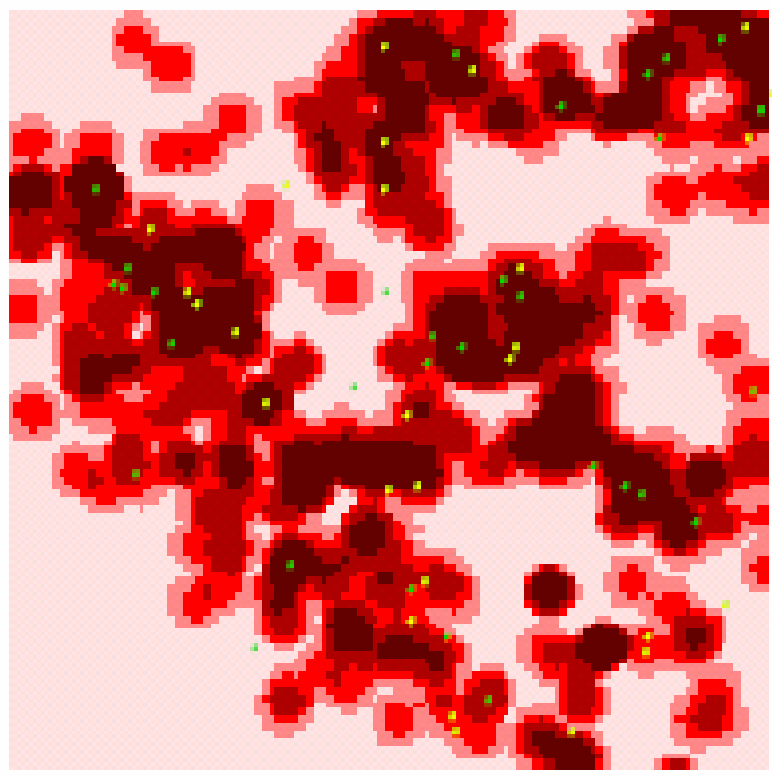


- Research: properties within 400m of a burgled house are at an elevated risk for upto one month – ‘near repeats’ (Bowers et al, 2004)
 - Burglary patterns were similar to those of communicable diseases
 - Were measured using techniques that were developed for epidemiology
 - Adapted these techniques for prospecting where burglary would spread to

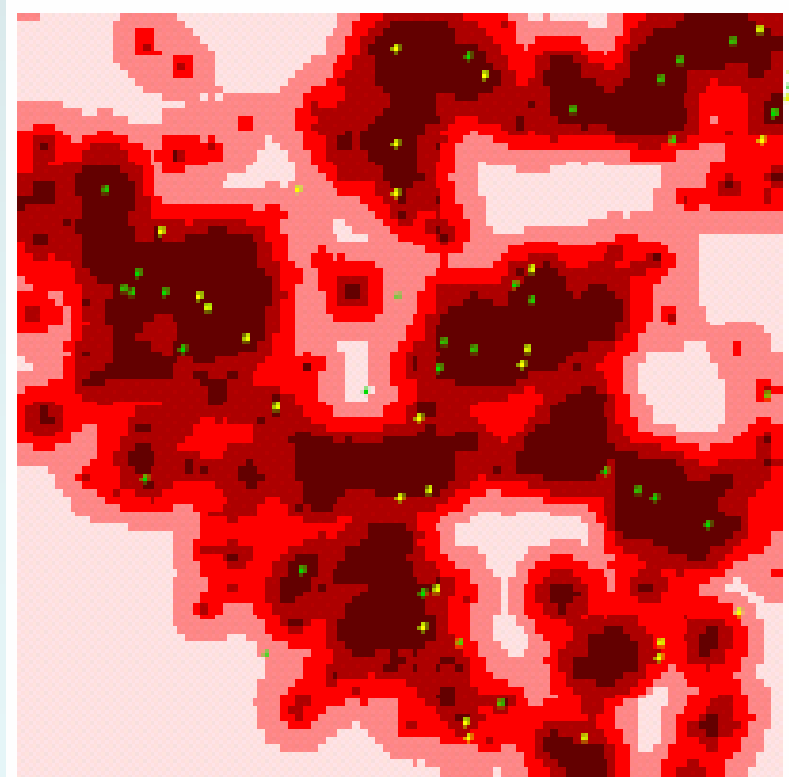
Prospective mapping

- 35% more accurate than common hotspot mapping techniques for showing where crime would happen next
(accuracy measure does account for differences in hotspot area)

Traditional hotspot mapping



Prospective hotspot mapping



Challenges

- Joining of its divergent and competing disciplines
- It requires data
 - And we all know about problems we can have with data (not available, poor quality, not geocoded)
- Requires (problem solving) analysis and research that is applied in policing and crime reduction to be better realised
 - E.g. problem is not solved when an offender has been locked up because the situation and opportunity may still remain
- Requires a change in mindset
 - Crime is not just about offenders but also about situations and opportunities
 - Application of scientific methodologies rather than knee-jerk responses that have little proven basis for being effective
 - Needs the police, crime reduction practitioners, the manufacturers of goods, the providers of services and the general public to appreciate the role of opportunity in crime, and accept their responsibilities for bringing it under control

Summary

- Crime science is a discipline
- Crime is fundamentally driven by opportunities and freedoms
 - If we want to reduce crime then we can not just rely on the CJS
 - Addressing opportunities offers more immediate solutions and can be easier
- Crime science draws from crime mapping
 - And crime mapping is becoming richer as a consequence

Resources

'Launching crime science' by Gloria Laycock. JDI short publication series – available for **free** at www.jdi.ucl.ac.uk

'Become an effective problem-solving crime analyst' by Ron Clarke and John Eck. JDI publication commissioned by the UK Home Office. - available for **free** at www.jdi.ucl.ac.uk

'Crime Science: new approaches to preventing and detecting crime' edited by Melissa Smith and Nick Tilley. For details see www.jdi.ucl.ac.uk

And one book certainly not to miss

'GIS and Crime Mapping' by Spencer Chainey and Jerry Ratcliffe.
For details see www.jdi.ucl.ac.uk

